

REMARKS

In the Official Action, the Examiner rejected 1-22. By this paper claims 1-22 have been amended to clarify certain aspects of the present claims. Additionally, new claims 23-27 have been added. Reconsideration of the application in view of the amendments and remarks set forth below is respectfully requested.

Rejections under 35. U.S.C. § 102

The Examiner rejected claims 1-4, 6-16 and 18-22 under 35 U.S.C. § 102 as being anticipated by Diab (U.S. Publication No. 2003/0036689, hereafter “the Diab reference”). Specifically, the Examiner stated:

With respect to claims 1-4, 7, 8, 13-16, 19 and 20, Diab et al. discloses a method of detecting the presence of mixed venous and arterial blood pulsation in tissue, comprising: receiving first and second electromagnetic radiation signals from a blood perfused tissue portion corresponding to infrared and red wavelengths of light, (abstract), obtaining a measure of a phase difference between said first and second electromagnetic radiation signals (Figure 25B), comparing said measure with a threshold value to form a comparison; and detecting the presence or absence of venous pulsation using said comparison (col. 31, paragraph [0387] - col. 32, paragraph [0395]), filtering said first and second electromagnetic radiation signals before said obtaining said measure, to pass portions of said first and second electromagnetic radiation signals having frequencies at or near the pulse rate or harmonics of the pulse rate of said blood perfused tissue (645, 647, Figure 25B), obtaining a measure of a phase difference between said first and second electromagnetic radiation signals comprises obtaining a measure of a persistent phase difference between said first and second electromagnetic radiation signals (694, Figure 25B), obtaining a measure of a persistent phase difference comprises integrating said measure of a phase difference over a time period (col. 10, paragraph [0133]), obtaining a measure of a phase difference comprises a frequency domain analysis and subtracting the phases of said first and second electromagnetic

radiation signals at a frequency (col. 32, paragraph [0402]), subtracting the phases of said first and second electromagnetic radiation signals comprises taking the complex conjugate of said first and second electromagnetic radiation signals, and dividing said complex conjugate by the product of the magnitudes of said first and second electromagnetic radiation signals (652, 654, 656, 658, Figure 25B).

Applicant respectfully traverses this rejection. Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under Section 102, a single reference must teach each and every element or step of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). Thus, if the claims recite even one element not found in the cited reference, the reference does not anticipate the claimed invention.

The present application discloses detecting the presence of venous pulsations so that a caregiver may be notified and take measures to preclude the presence of further venous pulsations. As such, independent claim 1, as amended, recites, *inter alia*, “detecting the presence or absence of venous pulsation … and indicating the presence of venous pulsation to a caregiver if venous pulsation is present.” Independent claim 13, as amended, recites, *inter alia*, “means for detecting the presence or absence of venous pulsation … and means for indicating the presence of venous pulsation when venous pulsation to a caregiver is present.”

In sharp contrast, the Diab reference discloses a system where the venous *saturation* is quantified. Specifically, the Diab reference calculates an arterial saturation and a venous saturation. *See* Diab, paragraph 395. To measure the venous saturation the Diab reference uses arterial saturation values and, thus, the venous saturation measurement appears to derive from arterial saturation measurements. *See id.* The Diab reference explains:

In order to obtain the venous saturation, the minimum arterial saturation value, of points that exhibit non-zero value, is selected rather than the maximum arterial saturation value. The saturation can be provided to the display 336.

Diab, paragraph 395. It is unclear how the venous saturation is used or why it is measured. More importantly, there is no discussion regarding the presence or absence of a venous *pulsation*, or how to remedy a situation when a venous pulsation is present. Furthermore, the Diab reference clearly does not disclose that an indication of a venous pulsation is provided to the caregiver for any reason.

Therefore, the Diab reference cannot anticipate independent claims 1 and 13. Accordingly, Applicants respectfully request the withdrawal of the rejection of independent claims 1 and 13, as well as the rejection of all claims dependent thereon.

Rejections under 35 U.S.C. § 103

The Examiner rejected claims 5 and 17 under 35 U.S.C. § 103(a) as being unpatentable over the Diab reference in view of the Chin reference. Applicants respectfully traverse the Examiner's rejection. The Chin reference does not cure the deficiencies of the Diab reference described above. Therefore, claims 5 and 17 distinguish over the cited combination for at least

these reasons. Accordingly, Applicants respectfully request the withdrawal of the rejection of claims 5 and 17.

New Claims

As set forth above, Applicants added new claims 23-27. For the reasons discussed in detail above and other claim features, Applicants believe these claims are patentable over the cited references and in condition for allowance. Therefore, the Applicants request that the Examiner allow the new claims 23-27

Conclusion

In view of the remarks set forth above, Applicant respectfully requests reconsideration of the Examiner's rejections and allowance of all pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Payment of Fees and Extensions of Time

In accordance with 37 C.F.R. § 1.136, Applicant hereby requests a one month extension of time and attaches the appropriate form PTO-2038 for payment of the requisite fee of **\$120.00**. Pursuant to this Response, Applicant has added three independent claims and 2 dependent claims. Payment of the requisite fee of **\$700.00** is charged to the attached form PTO-2038. Applicant authorizes the Commissioner to charge any additional fees or underpayments to Deposit Account No. 06-1315; Order No.TYHC:0149/FLE.

Respectfully submitted,

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